

## AwwaRF Tailored Collaboration

### *Water Quality Implications of Large-Scale Application of Seawater Desalination*

#### *Preliminary Pilot Plant Water Quality Report*

West Basin Municipal Water District and McGuire Environmental Consultants, Inc.

## Tailored Collaboration Project Status

- *Pilot plant testing underway since fall 2002*
- *The literature review is complete*
- *Utility case studies are complete*
- *Nationwide source water monitoring has begun*

*Final Product: A Water Quality Specification for Desalted Oceanwater*

## Water Quality Issues & Desalted Oceanwater Integration

*Based upon the literature review and preliminary work, several potential, but solvable, issues have emerged including:*

- **DBP formation**
- **Algal toxin rejection**
- **Boron rejection**
- **Total dissolved solids**
- **Chloride**
- **Bromamine formation**

## Partnership Project Status

*Partnership add-ons to the Tailored Collaboration being implemented – complete in late spring 04:*

- *Pilot distribution system for bacterial regrowth and corrosion control monitoring/stabilization*
- *Virus challenge testing*
- *Flavor Profile Analysis*
- *Exotic contaminant monitoring*

## Pilot distribution system for bacterial regrowth and corrosion control monitoring/stabilization

- *A model distribution system will be built to test corrosion control strategy effects on different plumbing materials*
- *Lead and copper rule compliance will be assessed*
- *Several variables will be examined (e.g. pH, alkalinity, temperature, etc.)*

## Virus challenge testing

- *Microfilter and reverse osmosis membrane rejection of model viruses will be examined.*
- *This will facilitate the California Department of Health Services permit process.*



Rendition of a bacteriophage like the model viruses to be used (MS-2)

### Flavor Profile Analysis

- Many people judge the quality of their tap water by the taste and odor
- West Basin's Partnership project will assess aesthetic qualities of desalinated seawater
- Flavor Profile Analysis will be used. It is a sophisticated taste and odor assessment tool adapted from the food and beverage industry
- This work on desalted oceanwater is unprecedented.

### Exotic contaminant monitoring

*Analyses for "exotic" contaminants will be conducted including:*

- Algal toxins
- Chromium VI
- NDMA
- Disinfection By-Products

### Water Quality Issues: Preliminary Observations

- DBP formation – not an issue
- Algal toxin rejection – unlikely to be an issue
- Boron rejection – high pH/dual pass for control (if needed)
- Corrosion control – TBD in Partnership
- Taste and odor – TBD in Partnership
- Bromamine formation – chlorine boost necessary